

## **REMARKS**

By this amendment, claims 14 and 26 have been amended. Claims 4, 5 and 15-17 have been previously cancelled. Currently, claims 1-3, 6-14 and 18-26 are pending in the application, of which claims 1-3, 6-13 and 18-20 are withdrawn from further consideration. Accordingly, claims 14 and 21-26 are currently active in this application, of which claims 14 and 26 are independent.

Applicant respectfully submits that the above amendments do not add new matter to the application and are fully supported by the specification. In view of the above Amendments and the following Remarks, Applicant respectfully requests reconsideration and withdrawal of the objections and rejections for the reasons discussed below.

### **Rejection of Claims under 35 U.S.C. §103**

Claims 14, 21-24 and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 5,852,481 issued to Hwang ("Hwang") in view of U. S. Patent No. 5,162,933 issued to Kakuda, et al. ("Kakuda") and further in view of Japanese Patent Publication No. 05241173 by Yatabe, et al. ("Yatabe"). Applicant respectfully traverses this rejection for at least the following reasons.

With respect to claims 14 and 21-24, independent claim 14 recites:

"14. A thin film transistor (TFT) panel, comprising:  
an insulating substrate;  
a gate wire formed on the substrate and comprising a  
gate line, a gate electrode and a gate pad;  
a gate insulating layer covering the gate wire;

a semiconductor layer formed on said gate insulating layer;

a data wire formed on the semiconductor layer comprising a data line, a source electrode and a drain electrode;

a passivation layer formed on the data wire and the gate wire and having a first contact hole extended to the gate pad and a second contact hole extended to the drain electrode; and

a transparent conductive layer formed on the passivation layer and connected to the gate pad through the first contact hole and the data wire through the second contact hole,

wherein at least one of the gate wire and the data wire comprises a main layer and a supplemental layer, and the supplemental layer is substantially inert to an etchant used for etching the transparent layer for preventing at least one of the gate pad and the data wire from being eroded by the etchant."

In the Office Action, the Examiner stated that the gate line and the data line of Hwang can be modified to include the teachings from Kakuda such that the gate line or the data line comprises an aluminum layer and a  $\text{MoCr}_x$  layer. As the motivation for the asserted combination of Hwang and Kakuda, the Examiner stated "... decreasing shorts of the TFT and obtaining high speed of the data line and prevent the generation of hillock and remaining the surface smooth" (Office Action, Page 4).

The Examiner admitted that the combination of Hwang and Kakuda does not disclose "the supplemental layer comprises metal nitride or metal alloy and being inert to an etchant for preventing the gate pad or the data wire from being eroded by the etchant" (Office Action, Page 4).

Regarding the missing feature, the Examiner stated that Yatabe discloses "the material of the electrode for liquid crystal display comprising metal nitride that is a solvent-resistance layer or air permeation resistant layer" (Office Action, page 4). The

Examiner asserted that the combination of Hwang and Kakuda can be further modified such that the supplemental layer of the gate or data wire is formed of metal nitride shown in Yatabe. As the motivation for the asserted combination of Hwang, Kakuda and Yatabe, the Examiner stated "achieving inert etching such as solvent-resistant/air permeation-resistance effect and a high qualify display" (Office Action, page 5).

It is submitted that a prima facie case of obviousness has not been fully established because there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings at least for the following reasons.

First, as MPEP 2143.01 indicates, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The Examiner asserted that Hwang can be modified such that the gate line or the data line comprises an aluminum layer and a MoCr<sub>x</sub> layer of Kakuda for decreasing shorts of the TFT, obtaining high speed of the data line and preventing the generation of hillock and remaining the surface smooth. Thus, if the combination of Hwang and Kakuda is further modified such that the supplemental layer formed of MoCr<sub>x</sub> is replaced with metal nitride of Yatabe, the supplemental layer may no longer achieve decreasing shorts of the TFT, obtaining high speed of the data line and preventing the generation of hillock and remaining the surface smooth.

Since the Examiner's asserted combination of Hwang, Kakuda and Yatabe changes the principal operation of the asserted combination of Hwang and Kakuda, it is

submitted that the teachings of the cited references are no sufficient enough to render claim 14 obvious.

Second, it is submitted that the cited references teach away from the asserted combination of the cited references. The asserted motivation to combine Hwang and Kakuda and the asserted motivation to combine Yatabe with the combination of Hwang and Kakuda are mutually exclusive. If Hwang is modified to have a supplemental layer formed of  $\text{MoCr}_x$  for decreasing shorts of the TFT, obtaining high speed of the data line and preventing the generation of hillock and remaining the surface smooth, the combination cannot be modified to replace the supplemental layer formed of  $\text{MoCr}_x$  with a metal nitride layer because it invalidates the motivations to combine Hwang and Takuda. Thus, it is submitted that Kakuda and Yatabe teach away from being combined to each other.

For these reasons, it is submitted that independent claim 14 is patentable over the cited references. Dependent claims 21-24 would be also patentable at least for the same reasons.

With respect to claim 26, this independent claim recites "wherein at least one of the gate wire and the data wire comprises a main layer and a supplemental layer, and the main layer comprises metal or a metal alloy, and the supplementary layer comprises metal nitride or metal alloy nitride".

As mentioned above, it is submitted that a prima facie case of obviousness has not been fully established because there is no suggestion or motivation for the asserted combination of the cited references. For example, the asserted combination of Hwang, Kakuda and Yatabe changes the principal operation of the asserted combination of

Hwang and Kakuda. Also, the cited references teach away from the asserted combination of the cited references. For these reasons, it is submitted that independent claim 26 is patentable over the cited references.

### **Other Matters**

In addition to the amendments mentioned above, claims 14 and 26 have been amended to delete certain limitations that appear to be unnecessarily limiting the claim scope. These amendments are not made for the purpose of avoiding prior art or narrowing the claimed invention, and no change in claim scope is intended. Therefore, Applicant does not intend to relinquish any subject matter by these amendments.


### **Conclusion**

Applicant believes that a full and complete response has been made to the Office Action and respectfully submits that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully Submitted,



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